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Lab Laurels
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Lab physicist gets top DoD civilian award

by Rich Garcia, Directed Energy Directorate

R. Russell Butts

KIRTLAND AFB, N.M. — Research physicist, R. Russell Butts, was presented the Department of Defense's highest civilian award at a Pentagon ceremony in December.

Butts, of the Air Force Research Laboratory's Directed Energy Directorate, received the Distinguished Civilian Service Award for his scientific work.

According to a citation that accompanied the award, Butts was praised for leading a research team, which developed essential technologies that will enhance America's missile defense capabilities. He directed his team's work on laser beam control capabilities for the Airborne Laser (ABL), a jumbo jet that will use a high-power laser to destroy ballistic missiles in their boost phase.

A supervisory principal scientist, Butts joins two other directorate scientists who have received this award over the past four years. In 1999, William L. Baker, the directorate's chief scientist, and in 1997, Robert Q. Fugate, senior scientist for atmospheric compensation, each received the award. In the past 40 years, fewer than 50 Air Force civilians have been presented this honor.

Between 1992 and 2000, the North Texas State University graduate led a 25-member team whose experiments and analysis validated the program's ability to transmit laser beams in the earth's upper atmosphere.

In 1992, Butts devised experiments that demonstrated the weapon system's ability to transmit lethal levels of laser energy over long distances through atmospheric disturbance. His experiments showed that the basic structure of atmospheric disturbances in the atmosphere's upper layers was not significantly different from the earth's boundary layer.

The Iowa Park, Texas, native developed airborne stellar scintillometer experiments that measured turbulence in the ABL's primary Middle East and Korean operational theaters. These tests measured the twinkling of a star to determine atmospheric distortion.

Between 1994 and 1995, he was the chief scientist of the $18 million ABL's Extended Atmospheric Characterization Experiment, which transmitted laser beams between aircraft flying at the ABL's operational levels. "This experiment was designed to measure horizontal turbulence at the ABL's operational flying altitude," he explained. These tests validated computer models and received the command's science and technology achievement award in 1996.

The 25-year federal employee, who holds a doctorate degree in mathematics from Louisiana State University, led a 40-member team that transformed North Oscura Peak in the U.S. Army's White Sands (N.M.) Missile Range into a world-class laser experiment site. He was the principal investigator for the ABL's non-cooperative target experiment, a series of congressionally mandated ground tests of a beam control system similar in many aspects to the ABL design.

"These tests validated the ABL's use of adaptive optics to compensate for atmospheric distortion," he noted.

The award is the highest given to career civilian employees by the Secretary of Defense for exceptional duty and extremely significant contributions in science, technology, or administrative fields that have led to increased efficiency, economy, or improvement within the Department of Defense. **@**